



Arizona State Retirement System

Fixed Income Asset Class Review August 17, 2009

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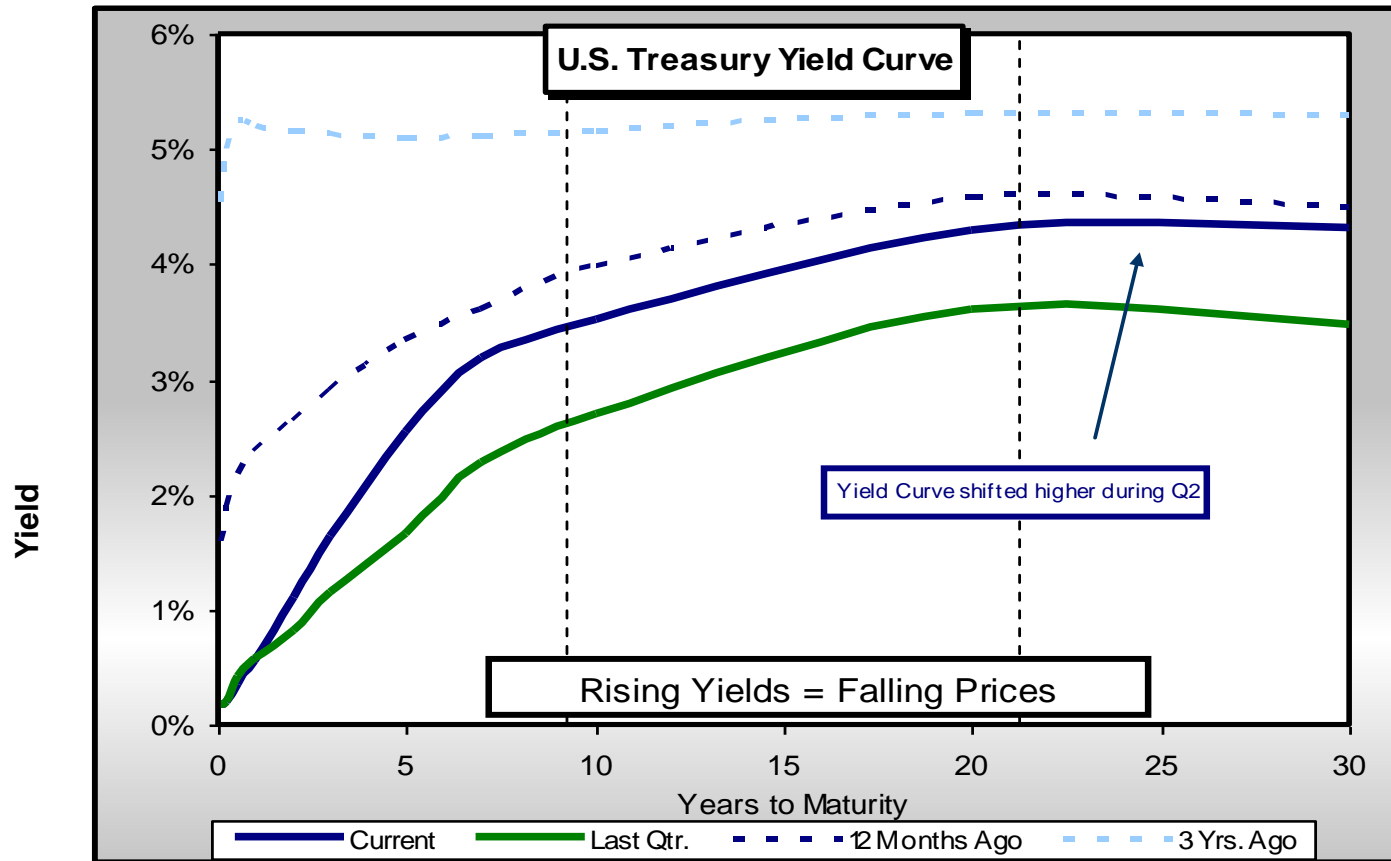
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Fixed Income Market Environment



U.S. Treasury Yield Curve



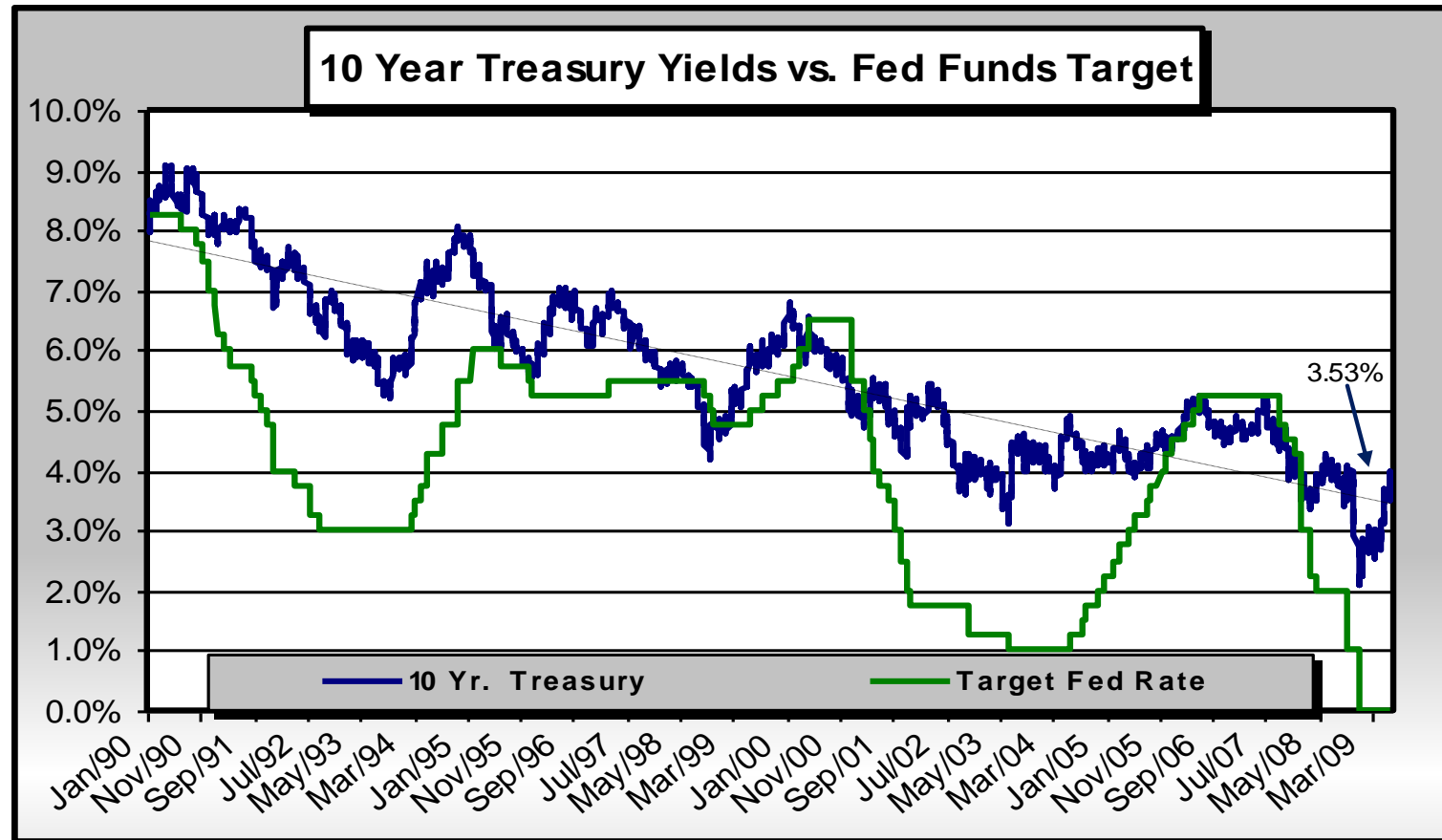
- **Interest rates rose in the belly and long end of the curve**

- Short term rates still anchored near zero

- Market is speculating rising rates, although the Fed has re-iterated their commitment to keep Fed Funds low



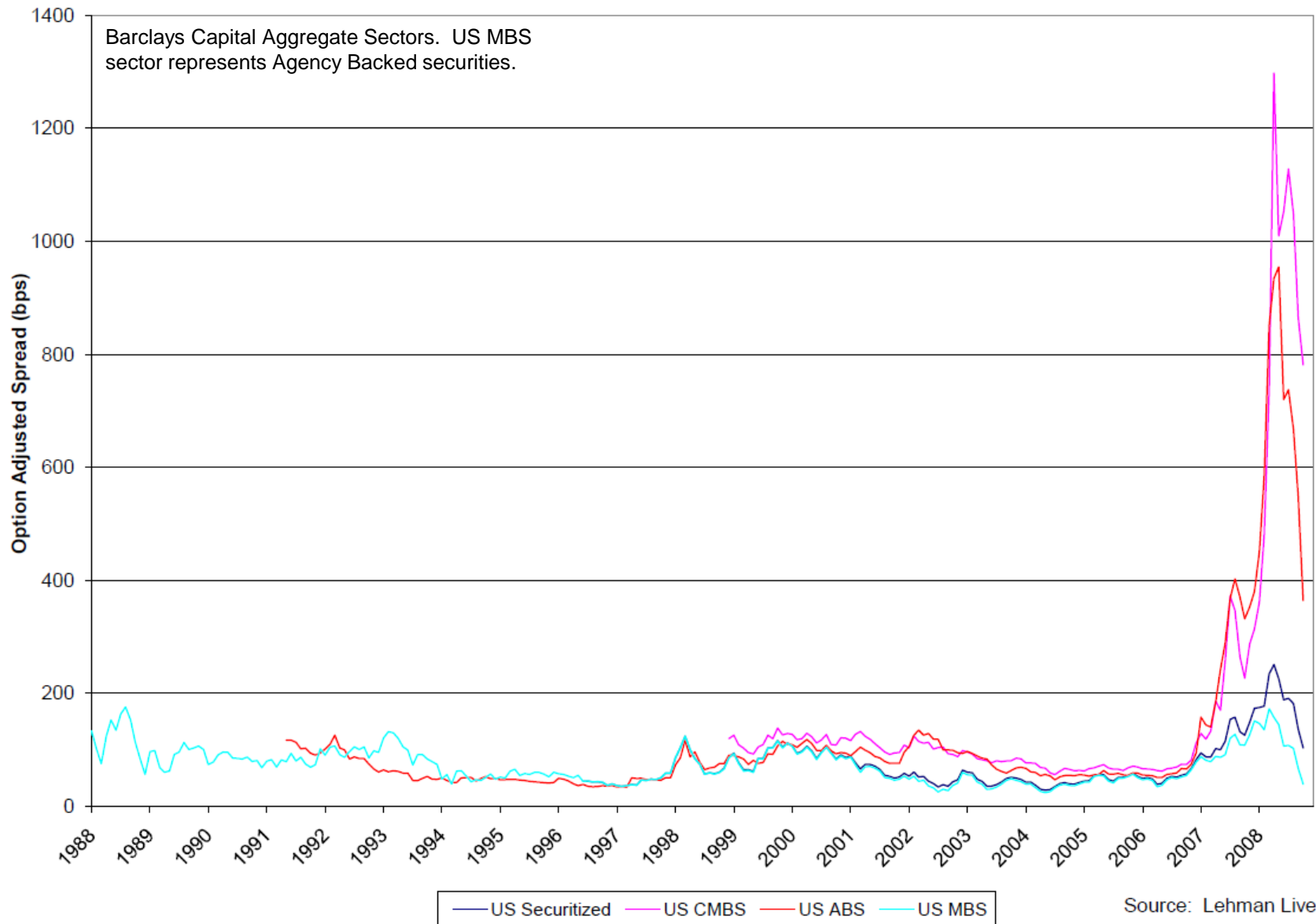
10 Yr. Treasury Yields



Fed Funds rate target is still between 0% and 0.25% while 10 Yr. Treas. Yield rose sharply to 3.53% as issuance of Treasuries increased in Q2...

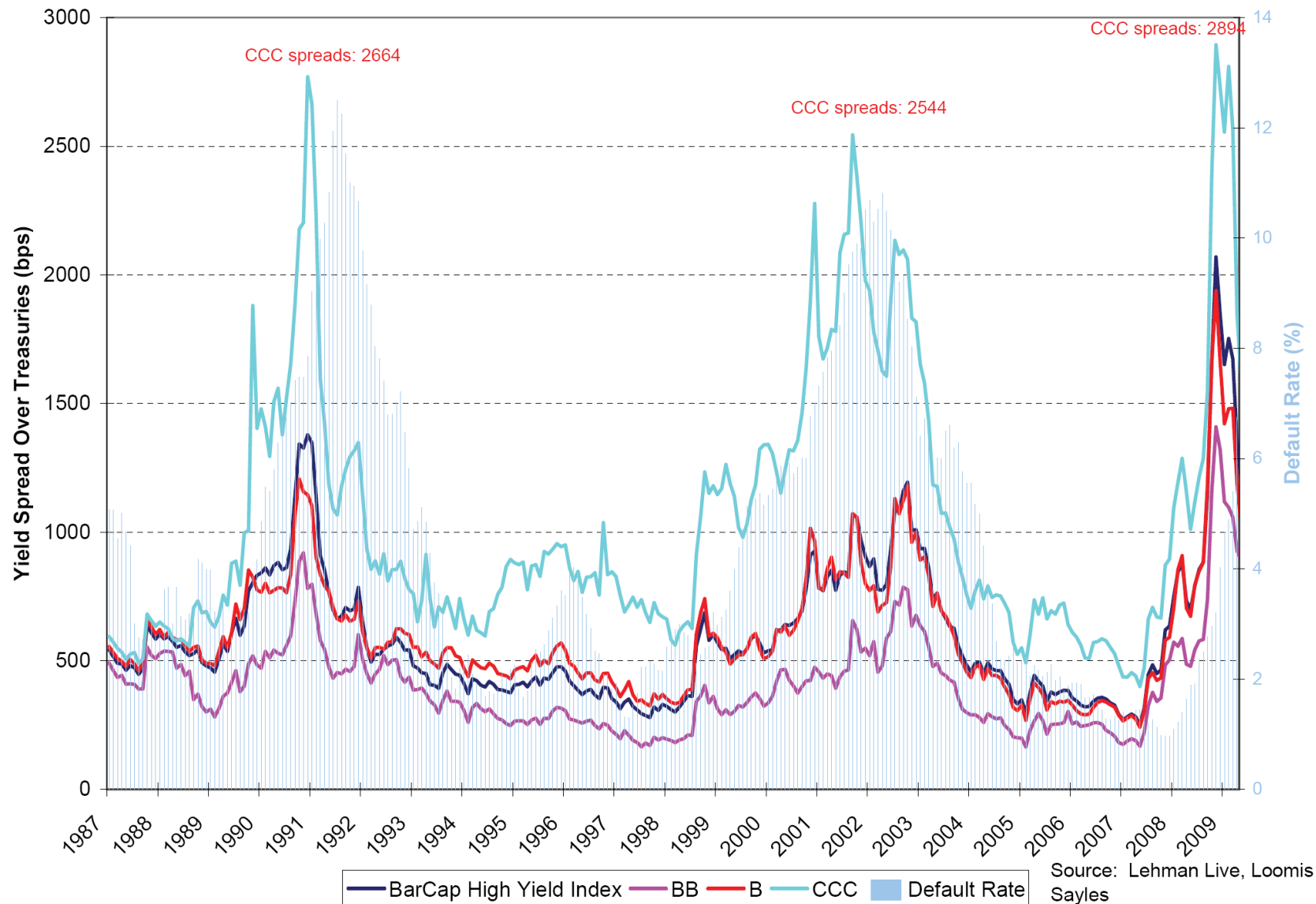


Securitized Spreads



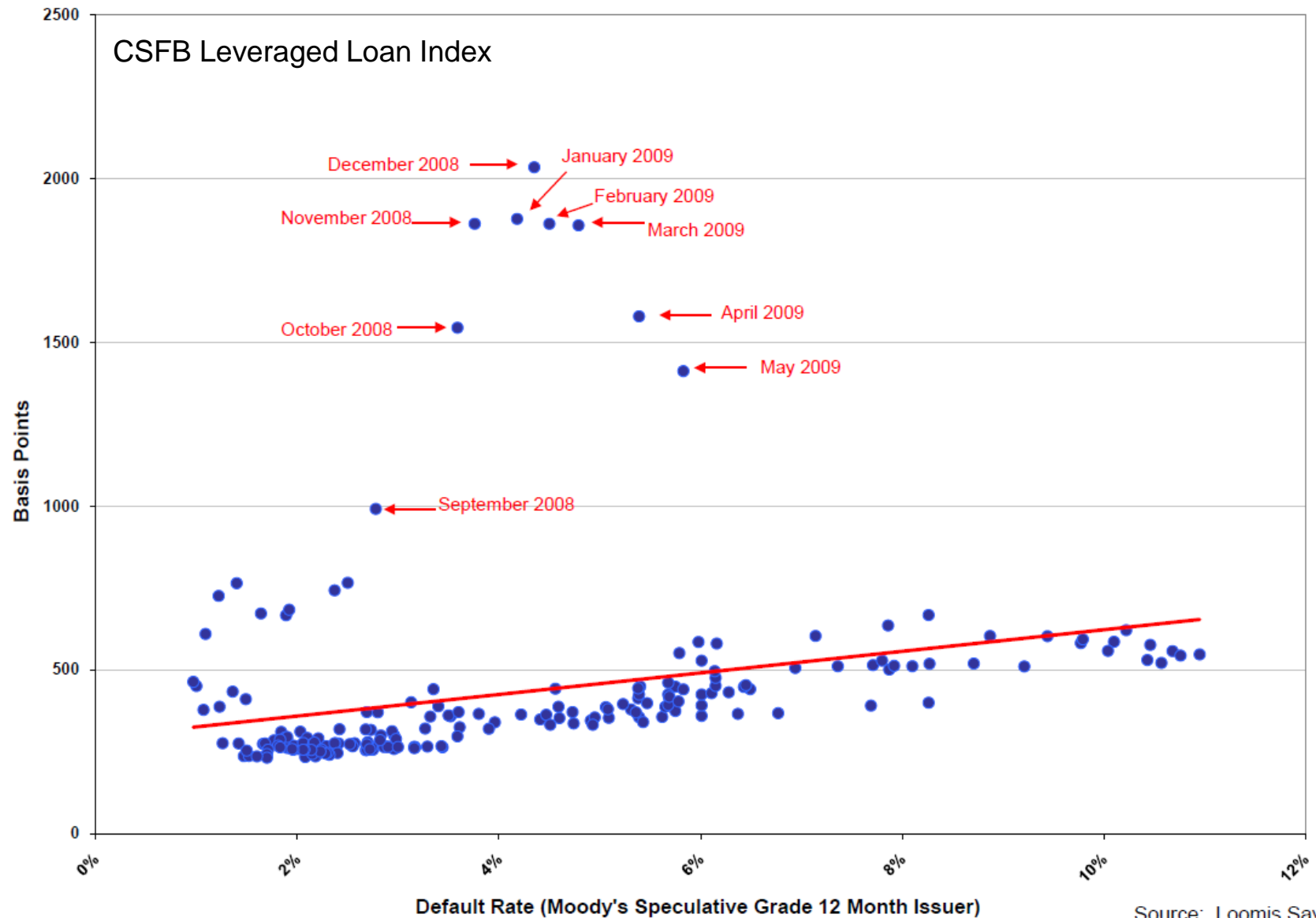


Corporate Credit Spreads





Bank Loan Spreads Still Wide, Defaults Ticking Up





Markets have begun to recover some of the 2007-2008 losses

Barclays Capital Fixed Income Indices relative to Treasuries (excess return) 1998–2009

	Agencies	MBS	ABS	CMBS Inv. Grade	U.S. Credit	Intermediate Credit	Long Credit	U.S. High Yield	EMD
Quality Ranking	High	High	High	High	Medium	Medium	Medium	Low	Low
1998	-49	-90	-88	n/a	-238	-150	-381	-843	-2046
1999	41	113	137	87	170	164	182	476	2417
2000	-13	-77	43	-41	-463	-237	-1003	-1897	148
2001	73	-75	139	131	277	138	667	-285	-541
2002	96	173	-16	210	-187	-129	-371	-1329	23
2003	27	11	181	201	527	439	824	2642	2465
2004	78	142	142	118	159	151	190	800	823
2005	13	-37	32	15	-85	-25	-291	47	959
2006	75	122	87	137	119	107	156	843	702
2007	-52	-185	-634	-435	-464	-399	-655	-777	-457
2008	-110	-255	-2223	-3274	-1786	-1504	-2719	-3832	-2842
YTD 2009*	167	285	1699	1281	1151	998	1638	3291	2233

Source: Barclays Capital via JP Morgan Asset Management

*YTD data as of June 30, 2009

The above table is shown for illustrative purposes only



Markets have begun to recover some of the 2007-2008 losses

Strong rally in Credit Spreads has resulted in sharp recovery in riskier asset classes

Asset Class	YTD2009	2008
Corporate Bonds	8.3%	-4.9%
CMBS	10.4%	-20.5%
High Yield	30.4%	-26.2%
Bank Loans	27.1%	-28.8%
U.S. Treasuries	-4.3%	13.7%
Barclays Agg Index	1.9%	5.2%

Note: Barclays Capital Indices were used for all of the returns above except for Bank Loans. The Credit Suisse Levered Loan Index was used to reflect the performance of Bank Loans during the period.

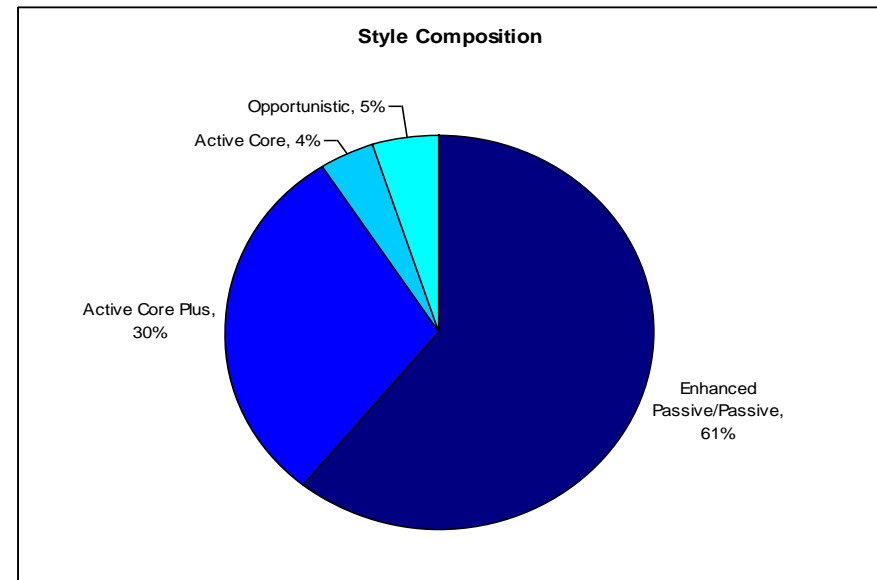
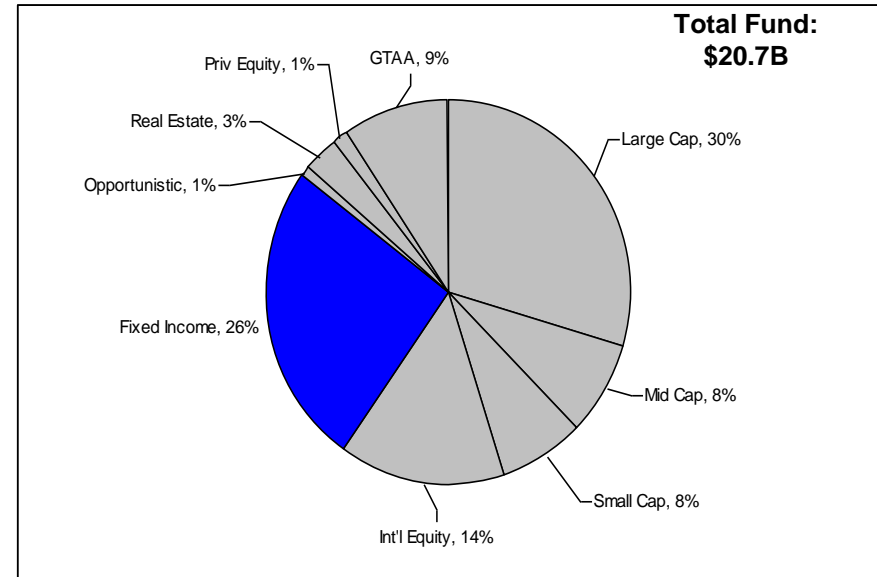


ASRS Fixed Income Asset Class (Aggregate)



ASRS Fixed Income Asset Class Overview (as of June 30, 2009)

- **Market Value: \$5.2B**
- **Passive Allocation: 61%**
 - Target 55% +/-20%
- **Portfolios:**
 - 2 Enhanced Passive
 - 1 Passive
 - 5 Active:
 - 2 Core Plus
 - 1 Core
 - 2 Opportunistic
- **Average Fees: 8 bps**



Note: Data excludes fixed income allocations in GTAA portfolios.



ASRS Fixed Income Asset Class Mandates (as of June 30, 2009)

Manager	Style	Benchmark	Inception Date	Expected Alpha (bps)	Portfolio Assets (\$Mil)	Strategy Assets (\$Mil)
Active						
BlackRock	Core Plus	BC Aggregate	11/30/1998	80	\$ 1,051	\$ 25,850
Pyramis	Core Plus	BC Aggregate	12/31/2003	100	\$ 510	\$ 5,282
BlackRock	Core	BC Aggregate	6/30/1987 ²	50	\$ 210	\$ 85,838
Opportunistic Fixed Income						
Hyperion	Opportunistic	10% Absolute Return	9/30/2008	10% Absolute	\$ 122	\$ 1,038
Guggenheim	Opportunistic	10% Absolute Return	9/30/2008	10% Absolute	\$ 139	\$ 926
Enhanced Passive/Passive						
BGI (Enhanced)	Core	BC Aggregate	9/30/2004	10	\$ 479	\$ 44,669
F2 (Enhanced)	Core	BC Aggregate	9/30/2000	10	\$ 2,634	N/A
BGI (Passive)	Gov't/Credit	BC Intermediate Gov't/Credit	12/31/2008	10	\$ 27	\$ 816

¹Hyperion Fee Schedule: 75 bps on the first \$100 Million, 70 bps on the next \$250 Million, 65 bps on the next \$400 Million

Guggenheim Fee Schedule: 70 bps on the first \$250 Million, 60 bps on assets from \$250-\$400 Million

²JP Morgan managed the Core Bond portfolio from June 1987 – September 2008. BlackRock began managing the Core Bond portfolio in September 2008.



ASRS Fixed Income Manager Summary (as of June 30, 2009)

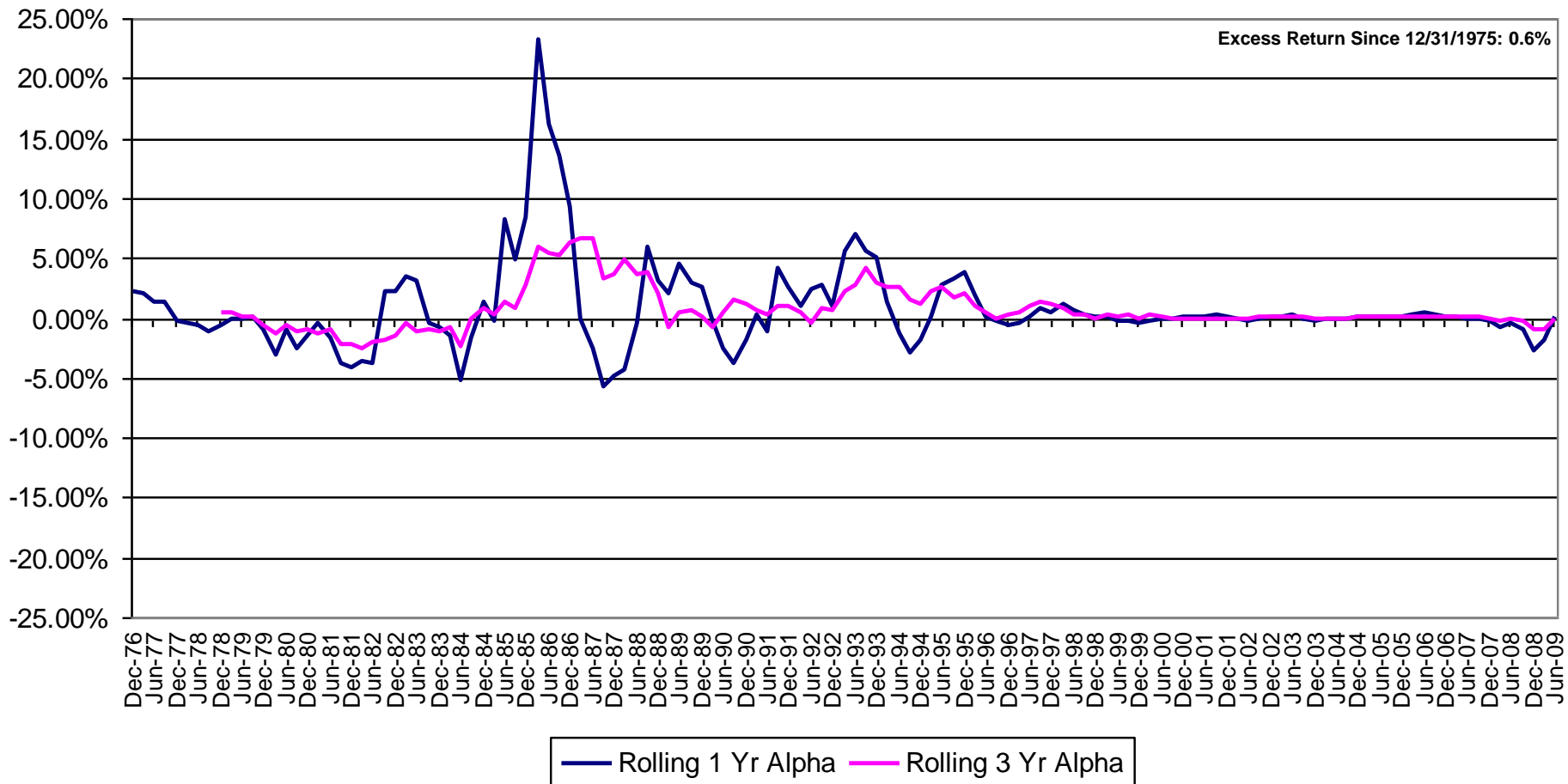
Manager Name	Assets Under Management (\$Mil)	% of Fixed Income
Active		
BlackRock (Core Plus)	\$ 1,051.0	20.3%
Pyramis (Core Plus)	\$ 509.5	9.9%
BlackRock (Core)	\$ 210.3	4.1%
Total Active Fixed Income	\$ 1,770.8	34.2%
Opportunistic Fixed Income		
Hyperion (Opportunistic)	\$ 121.7	2.4%
Guggenheim (Opportunistic)	\$ 138.8	2.7%
Total Opportunistic Fixed Income	\$ 260.5	5.0%
Enhanced Passive		
BGI (Core)	\$ 479.1	9.3%
Internally Managed F2 (Core)	\$ 2,633.8	50.9%
Total Enhanced Passive Fixed Income	\$ 3,112.9	60.2%
Passive		
BGI (Gov't/Credit)	\$ 26.6	0.5%
Total Passive Fixed Income	\$ 26.6	0.5%
Total Fixed Income	\$ 5,170.8	100%



ASRS Total Fixed Income (as of June 30, 2009)

Combined Fixed Income vs. Barclays Capital Aggregate Bond

Excess Returns Since December 31, 1975¹ – June 30, 2009



¹Inception date of the ASRS Fixed Income Composite is June 30, 1975. Performance shown since December 31, 1975 because the Barclays Capital Aggregate Bond Index began reporting performance January 1, 1976.

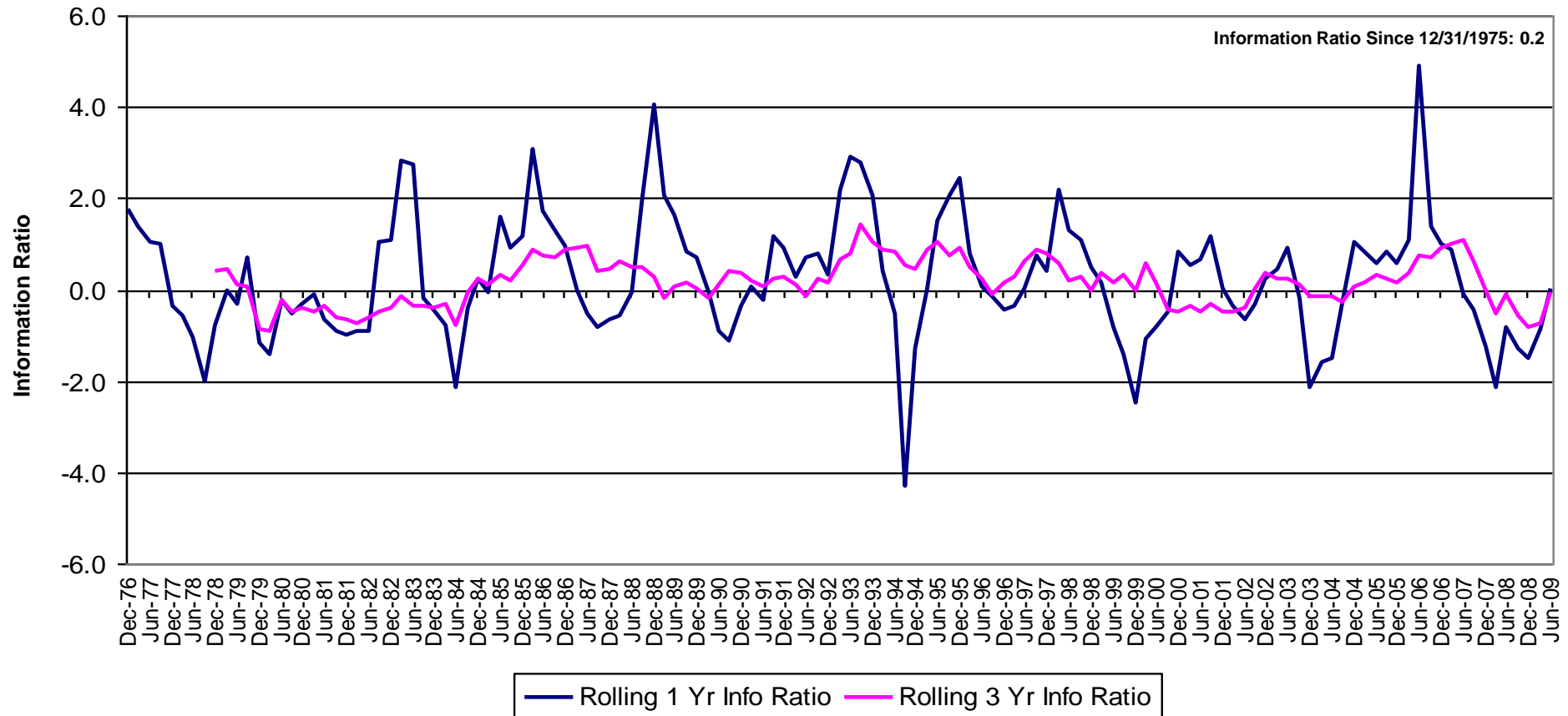
Note: Based on quarterly, net of fee performance data.





ASRS Total Fixed Income (as of June 30, 2009)

Rolling Information Ratio Since December 31, 1975¹ – June 30, 2009



¹Inception date of the ASRS Fixed Income Composite is June 30, 1975. Performance shown since December 31, 1975 because the Barclays Capital Aggregate Bond Index began reporting performance January 1, 1976.

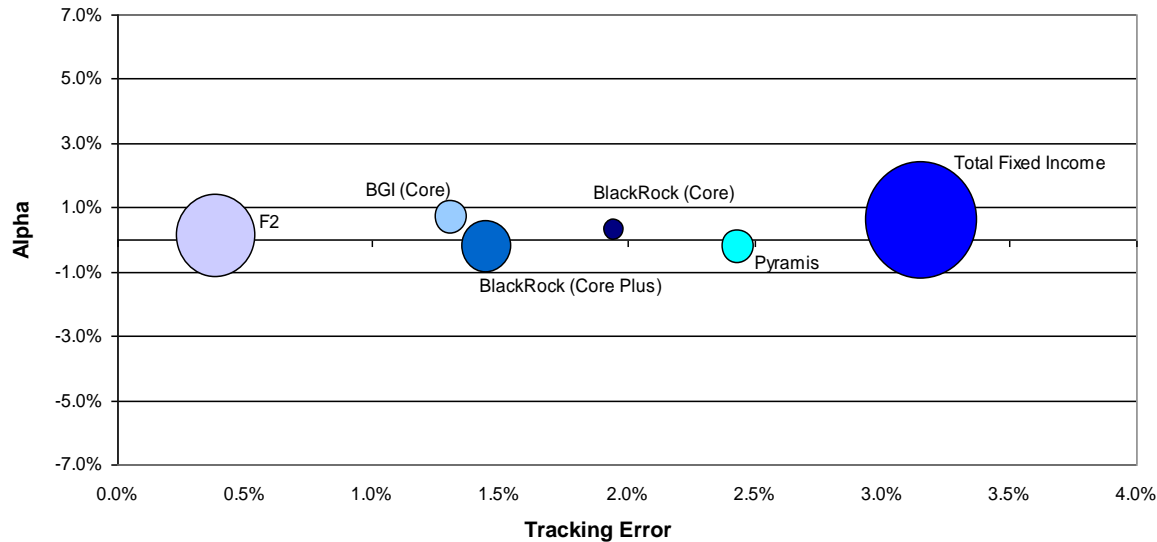
Note: Based on quarterly, net of fee performance data.



ASRS Fixed Income Volatility/Return (as of June 30, 2009)

Volatility/Return Bubble Chart

Inception Date – June 30, 2009



Manager	Assets Under Management (\$Mil)	Inception Date	Alpha	Tracking Error	Information Ratio
BlackRock (Core Plus)	\$ 1,051.0	11/30/98	-0.2%	1.5%	-0.2
Pyramis	\$ 509.5	12/31/03	-0.3%	2.4%	-0.1
BlackRock (Core) ¹	\$ 210.3	6/30/87	0.3%	2.0%	0.1
F2	\$ 2,633.8	9/30/00	0.1%	0.4%	0.2
BGI (Core)	\$ 479.1	9/30/04	0.7%	1.3%	0.5
Total Fixed Income²	\$ 5,170.8	6/30/75	0.6%	3.2%	0.2

¹JP Morgan managed the Core Bond portfolio from June 1987 – September 2008. BlackRock began managing the Core Bond portfolio in September 2008.

²Inception date of the ASRS Fixed Income Composite is June 30, 1975. Performance shown since December 31, 1975 because the Barclays Capital Aggregate Bond Index began reporting performance January 1, 1976.

Note: Manager data based on monthly, net of fee performance data. Total Fixed Income and BlackRock Core data based on quarterly, net of fee performance data.

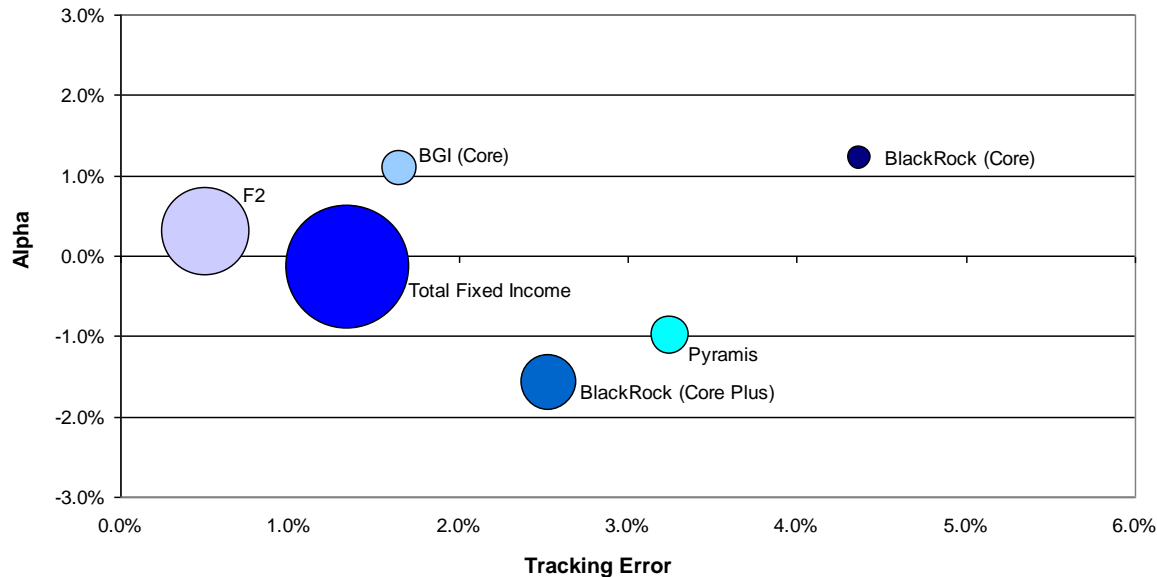
Hyperion, Guggenheim and BGI Intermediate Gov't/Credit portfolios excluded given short performance history.



ASRS Fixed Income Volatility/Return (as of June 30, 2009)

Volatility/Return Bubble Chart

3 Years Ending June 30, 2009



Manager	Assets Under Management (\$Mil)	Inception Date	Alpha	Tracking Error	Information Ratio
BlackRock (Core Plus)	\$ 1,051.0	11/30/98	-1.6%	2.5%	-0.6
Pyramis	\$ 509.5	12/31/03	-1.0%	3.3%	-0.3
BlackRock (Core) ¹	\$ 210.3	6/30/87	1.2%	4.4%	0.3
F2	\$ 2,633.8	9/30/00	0.3%	0.5%	0.6
BGI (Core)	\$ 479.1	9/30/04	1.1%	1.7%	0.7
Total Fixed Income	\$ 5,170.8	6/30/75	-0.1%	1.4%	-0.1

¹JP Morgan managed the Core Bond portfolio from June 1987 – September 2008. BlackRock began managing the Core Bond portfolio in September 2008.

Note: Manager data based on monthly, net of fee performance data.

Hyperion, Guggenheim and BGI Intermediate Gov't/Credit portfolios excluded given short performance history.



ASRS Fixed Income Performance (as of June 30, 2009)

Weight in Fund		Ending Market Value	Last 3 Months	Rank	Year to-Date	Rank	Last Year	Rank	Annualized Returns						Since Inception	Inception Date
									Three Years	Rank	Five Years	Rank	Ten Years	Rank		
25.3%	Total Fixed Income	\$5,170,932,317	4.0%	53	4.5%	58	6.1%	33	6.3%	38	5.0%	40	6.0%	51	9.0%	Jun-75
	BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		--	
	Performance Variance (Return - Benchmark)		2.2%		2.6%		0.1%		-0.1%		0.0%		0.0%		--	
	ICC Fixed Income Funds Median		4.5%		5.4%		4.6%		5.9%		5.0%		6.1%		--	
7.6%	ACTIVE CORE PLUS FIXED INCOME															
5.1%	BlackRock Core Plus	\$1,050,999,828	4.0%	88	4.6%	92	2.6%	70	4.9%	61	4.3%	70	5.7%	83	5.3%	Nov-98
	BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		5.5%	
	Performance Variance (Return - Benchmark)		2.2%		2.7%		-3.4%		-1.6%		-0.8%		-0.3%		-0.2%	
	ICC Core Plus Fixed Income Funds Median		5.9%		6.6%		5.1%		6.1%		5.7%		6.8%		--	
2.5%	Pyramis	\$509,544,882	5.9%	44	8.0%	37	4.4%	51	5.4%	54	4.8%	60	n/a		4.3%	Dec-03
BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		4.6%		
Performance Variance (Return - Benchmark)		4.1%		6.1%		-1.7%		-1.0%		-0.3%		n/a		-0.3%		
ICC Core Plus Fixed Income Funds Median		5.6%		6.6%		5.1%		6.1%		5.7%		6.8%		--		
1.0%	ACTIVE CORE FIXED INCOME															
1.0%	BlackRock Core ¹	\$210,337,790	6.6%	20	7.0%	24	13.4%	1	7.6%	11	5.9%	10	6.6%	14	7.6%	Jun-87
	BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		7.3%	
	Performance Variance (Return - Benchmark)		4.8%		5.1%		7.3%		1.2%		0.9%		0.6%		0.3%	
	ICC Core Fixed Income Funds Median		4.3%		5.4%		5.7%		6.2%		5.1%		6.2%		--	
15.2%	ENHANCED PASSIVE FIXED INCOME															
2.3%	BGI	\$479,129,374	5.7%	31	5.7%	42	9.0%	10	7.5%	17	n/a		n/a		5.3%	Sep-04
	BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		4.6%	
	Performance Variance (Return - Benchmark)		3.9%		3.8%		3.0%		1.1%		n/a		n/a		0.7%	
	ICC Core Fixed Income Funds Median		4.3%		5.4%		5.7%		6.2%		5.1%		6.2%		--	
12.9%	Internally Managed F2	\$2,633,818,617	2.5%	76	2.6%	85	6.6%	37	6.7%	34	5.2%	39	n/a		6.1%	Sep-00
	BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		6.0%	
	Performance Variance (Return - Benchmark)		0.7%		0.7%		0.6%		0.3%		0.2%		n/a		0.1%	
	ICC Core Fixed Income Funds Median		4.3%		5.4%		5.7%		6.2%		5.1%		6.2%		--	
1.3%	OPPORTUNISTIC FIXED INCOME															
0.6%	Hyperion	\$121,694,878	8.0%		3.6%		n/a		n/a		n/a		n/a		-0.5%	Sep-08
	10% Absolute Return		2.4%		4.9%		10.0%		10.0%		10.0%		10.0%		7.4%	
	Hyperion Custom Benchmark ²		7.8%		2.7%		-30.1%		n/a		n/a		n/a		-24.5%	
	BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		6.6%	
	Performance Variance (Return - Primary Benchmark)		5.6%		-1.3%		n/a		n/a		n/a		n/a		-7.9%	
0.7%	Guggenheim	\$138,799,710	16.4%		26.0%		n/a		n/a		n/a		n/a		22.0%	Sep-08
	10% Absolute Return		2.4%		4.9%		10.0%		10.0%		10.0%		10.0%		7.4%	
	Guggenheim Custom Benchmark ³		8.1%		11.6%		-2.8%		n/a		n/a		n/a		1.2%	
	BC Aggregate		1.8%		1.9%		6.1%		6.4%		5.0%		6.0%		6.6%	
	Performance Variance (Return - Primary Benchmark)		14.0%		21.1%		n/a		n/a		n/a		n/a		14.6%	
0.1%	INTERMEDIATE FIXED INCOME GOV'T/CREDIT															
0.1%	BGI	\$26,607,238	1.7%	66	1.7%	80	n/a		n/a		n/a		n/a		1.7%	Dec-08
	BC Intermediate Gov't/Credit		1.7%		1.6%		5.3%		6.1%		4.6%		5.7%		1.6%	
	Performance Variance (Return - Benchmark)		0.1%		0.0%		n/a		n/a		n/a		n/a		0.0%	
	ICC Intermediate Fixed Income Funds Median		2.5%		3.8%		5.8%		6.3%		5.0%		5.6%		--	

¹JP Morgan managed the Core Bond portfolio from June 1987 - September 2008. BlackRock began managing the Core Bond portfolio in September 2008.

²Hyperion Custom Benchmark is 50% Barclays Capital ABS Home Equity/25% Barclays Capital Investment Grade CMBS/25% Barclays Capital High Yield CMBS.

³Guggenheim Custom Benchmark is 70% Barclays Capital ABS Index/15% Barclays Capital ABS Home Equity/15% Barclays Capital CMBS Index.

Note: Manager performance is reported net of fees. Ranks and ICC medians are based on gross of fee performance data.

Manager Assessment

Manager	Strategy	Conviction Level	NEPC Focused Placement List Strategy
BlackRock	Core Plus	High	Yes
Pyramis	Core Plus	Mild	No
BlackRock	Core	High	Yes
Hyperion	Opportunistic	Mild	No
Guggenheim	Opportunistic	Mild	No
BGI	Enhanced Passive Core	Mild	No
BGI	Passive Gov't Credit	Mild	No

“High Conviction Level” strategies denote NEPC’s belief that the manager has above average prospects of generating alpha going forward.

“Mild Conviction Level” strategies denote NEPC’s belief that the manager has average prospects of generating alpha going forward.

“Low Conviction Level” strategies denote NEPC’s belief that the manager has below average prospects of generating alpha going forward.

NEPC’s Focused Placement List represents internally vetted managers and strategies we put forward to clients who are conducting a search. Criteria for inclusion vary per asset class.



Takeaways and Other Discussion Topics

- The ASRS Fixed Income Portfolio has added 0.6% of alpha since inception (December 31, 1975)*.
 - The portfolio has been able to do so with 30 basis points less volatility than the benchmark over this period.
 - Year-to-date, the portfolio has added 2.6% of alpha, and ranks in the 58th percentile of ICC Fixed Income Funds. The fund ranks below median despite its strong return over this period, which can be partially attributed to the smaller amount of below investment grade credit in the portfolio relative to other funds.
- BlackRock and Pyramis Core Plus have rebounded nicely year-to-date, outperforming the Barclays Capital Aggregate Bond Index by 2.7% and 6.1%, respectively.
 - BlackRock's performance benefited the Fund on an absolute basis, but the conservative approach of the portfolio has resulted in the fund ranking in the bottom third of its peer universe.
- BlackRock's Core portfolio has performed well on both an absolute and relative basis since its inception.
 - BlackRock is an NEPC preferred manager, however, they are conservative in nature and manage the portfolio closely to the index.
- Hyperion and Guggenheim performed well during the second quarter, but it is still too early to appropriately measure their performance relative to the 10% absolute return these portfolios are expected to provide.
- Structure
 - The Fund's Core Plus managers are underperforming the index since inception
 - Consolidate Core Plus and Core mandates into one/two Core portfolio(s)
 - Allow niche managers to take advantage of opportunities in below investment grade and spread sectors
- Current spreads and volatility in credit markets provide the potential for attractive risk-adjusted returns
 - Add allocation to below investment grade asset classes
 - Expand Opportunistic Allocation to take further advantage of distressed credit markets as opportunities present themselves
- Maintain a nimble focus, implementing tactical views with passive vehicles, including BGI modules and internally managed F2 portfolio

*Inception date of the ASRS Fixed Income Composite is June 30, 1975. Performance shown since December 31, 1975 because the Barclays Capital Aggregate Bond Index began reporting performance January 1, 1976.